

REMARKS/ARGUMENTS

Applicant responds herein to the Office Action dated September 28, 2006.

Claims 1-19 are the claims currently pending in the present application.

Claims 1-5, 10-14 and 19 are amended to clarify features recited thereby and to render their text closer to styles currently used in U.S. patent practice.

Applicant thanks the Examiner for acknowledging the claim for foreign priority and the receipt of the priority document.

Further, Applicant thanks the Examiner for acknowledging review and consideration of the references cited in the Information Disclosure Statement filed March 30, 2004.

Claims 1, 3-10 and 12-19 are ***Rejected*** under 35 U.S.C. §102(e) as being anticipated by Deneire et al. U.S. Patent No. 6,990,061. Reconsideration of this rejection is respectfully requested.

Among the problems recognized and solved by Applicant's claimed invention is that the reflection coefficient, the transmission coefficient and the refraction coefficient are conventionally set based on a center frequency of transmission in a conventional ray tracing technique, however, these coefficients are frequency dependent, and therefore the frequency transfer function in the ray tracing technique becomes unreliable as the difference between the center frequency and the observed frequency at the observation point increases (Specification, page 5). According to an aspect of Applicant's claimed invention, the frequency spectrum of the radio frequency transmission is divided into several bands by using a predetermined frequency for each band to determine the frequency transfer function.

For at least the following reasons, the recitations of independent claims 1, 10 and 19 are neither anticipated by nor obvious based on Deneire. By way of example, independent claims 1, 10 and 19 require tracing courses of a plurality of rays approximating the radio wave radiated from a transmission point, which includes dividing a spectrum of a radio signal into a plurality of bands, and determining the frequency transfer function of a predetermined frequency of each of the plurality of bands.

Deneire discloses a frequency response estimation of a channel in which a maximum likelihood frequency domain is estimated based on reference tones (Deneire, Abstract; Column

12, lines 26-33). Deneire discloses that the maximum likelihood estimator may be compared to the LMMSE algorithm by using a channel modeled by means of a conventional ray tracing technique (Deneire, Column 10, lines 29-54).

Deneire does not disclose or suggest a ray tracing technique of tracing the courses of a plurality of rays, including dividing the spectrum of a radio signal into a plurality of bands and determining the frequency transfer function of a predetermined frequency of each of the plurality of bands, as *inter alia* required by independent claims 1, 10 and 19. That is, Deneire mentions a conventional ray tracing technique for a channel to compare the performance of estimation methods discussed by Deneire (Deneire, Column 10, lines 29-54), however, Deneire is silent on an improved ray tracing technique which includes dividing the spectrum of a radio signal into a plurality of bands and determining the frequency transfer function of a frequency of each of the plurality of bands.

Further, since Deneire does not disclose or suggest determining the frequency transfer function of a predetermined frequency of each of the plurality of bands, Deneire is incapable of disclosing or suggesting estimating radio wave propagation characteristics based on such frequency transfer functions, as further required by independent claims 1, 10 and 19. Accordingly, Deneire does not disclose or suggest the recitations of independent claims 1, 10 and 19.

Moreover, Deneire is silent with respect to the above-identified problems recognized and solved by Applicant's claimed invention. For example, the problem that the reflection coefficient, the transmission coefficient and the refraction coefficient are frequency dependent, and therefore the frequency transfer function becomes unreliable as the difference between the set frequency of transmission and the observed frequency increases, is not disclosed or suggested by Deneire. Accordingly, it is respectfully submitted that the recitations of independent claims 1, 10 and 19 would not have been obvious of one of ordinary skill in the art based on Deneire.

Claims 3-9 depend from independent claim 1, and claims 12-18 depend from independent claim 10. Accordingly, claims 3-9 and 12-18 are patentably distinguishable over the cited art for at least the same reasons as their respective base claims.

Newly presented claim 20 is modeled after claim 19 and patentable for similar reasons.

Claims 2 and 11 are rejected under 35 U.S.C. § 103 as being obvious from Deneire in

view of Hill, U.S. Patent Application Publication No. 2001/0006006. Reconsideration of this rejection is respectfully requested.

Claims 2 and 11 depend from independent claims 1 and 10, respectively. Hill does not cure the above-identified deficiencies of Deneire as they relate to the above-discussed recitations of independent claims 1 and 10. Further, the Examiner does not allege that Hill discloses or suggests such features of independent claims 1 and 10. Accordingly, Deneire and Hill even taken together or in combination, do not disclose or suggest the recitations of independent claims 1 and 10. Therefore, claims 2 and 11 are patentably distinguishable for at least the same reasons as their respective base claims.

Moreover, it is respectfully submitted that the proposed combination of Hill and Deneire would not have been obvious in one of ordinary skill in the art because Hill lies in a field of technology non-analogous to that of Deneire. As discussed, Deneire is in a field of radio frequency channel destination estimation algorithm based on a maximum likelihood of the frequency domain, whereas Hill discloses a contact sensitive device using bending wave vibration to calculate information about the contact of the contact sensitive device. Therefore, the proposed combination of Deneire and Hill would not have been obvious to a person skilled in the art.

In view of the foregoing discussion, withdrawal of the rejections and allowance of the application are respectfully requested.

Accordingly, the Examiner is respectfully requested to reconsider the application, allow the claims as amended and pass this case to issue.

Should the Examiner have any questions regarding the present amendment or regarding the application generally, the Examiner is invited to telephone the undersigned attorney at the below-provided telephone number.

THIS CORRESPONDENCE IS BEING
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Respectfully submitted,



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